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HARNES, DICKEY & PIERCE, P.L.C.		
P.O. BOX 828		
BLOOMFIELD HILLS, MI 48303		

  

EXAMINER	
THIRUGNANAM, GANDHI	

  

ART UNIT	PAPER NUMBER
2624	

  

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/506,311

Applicant(s)

KONDO ET AL.

Examiner

Gandhi Thirugnanam

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities:

The word "cerfivating" in the title is misspelled twice. It should probably be certifying.

The title of the invention is not descriptive. The title is wordy and does not make sense. A new title is required that is clearly indicative of the invention to which the claims are directed.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33

F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

**Claim 17** is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 17 defines "a program for instructing a computer" embodying functional descriptive material. However, the claim does not define a computer-readable medium or computer-readable memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory (refer to "note" below). Any amendment to the claim should be commensurate with its corresponding disclosure.

**Note:**

A "signal" (or equivalent) embodying functional descriptive material is neither a process nor a product (i.e., a tangible "thing") and therefore does not fall within one of

the four statutory classes of § 101. Rather, "signal" is a form of energy, in the absence of any physical structure or tangible material.

Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a "signal", the claim as a whole would be non-statutory. In the case where the specification defines the computer readable medium or memory as statutory tangible products such as a hard drive, ROM, RAM, etc, as well as a non-statutory entity such as a "signal", "carrier wave", or "transmission medium", the examiner suggests amending the claim to include the disclosed tangible computer readable media, while at the same time excluding the intangible media such as signals, carrier waves, etc.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claim 8** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The term "thinning" is only mentioned in ¶ [0059]. No clear meaning is apparent for this term.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 7, 8, 11-13 and 15-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Oda (Patent #6,542,624), hereafter referred to as Oda.

Regarding **claim 1**, Oda discloses a personal authentication method using iris images, comprising a registration process and an authentication process, the **registration process** including the steps of:

acquiring an iris image from a registrant; (*Oda, Col. 4 Lines 9-11*)

obtaining feature data and a pupil opening degree index from the acquired iris image; (*Oda, Col. 4 Lines 11-13, the system verifies whether or not the photographed image of the eye exhibits biogenic responses, Where typical biogenic responses are defined in Col. 3 Lines 54-62. The "pupil opening index" references "the contraction of pupil diameter"*) and

performing data registration for the registrant in an iris database using the obtained feature data and pupil opening degree index, and (*Oda, Col 4, Lines 14-24,*

*where the image of an eye exhibiting biogenic characteristics is inputted based on the life check code.)*

the **authentication process** including the steps of:

acquiring an iris image from a person to be authenticated; (Oda, Col. 4 Lines 9-11).

obtaining feature data and a pupil opening degree index from the acquired iris image; (Oda, Col. 4 Lines 11-13, *the system verifies whether or not the photographed image of the eye exhibits biogenic responses, Where typical biogenic responses are defined in Col. 3 Lines 54-62. The "pupil opening index" references "the contraction of pupil diameter"*)

obtaining feature data to be collated by referring to data registered for a registrant in the iris database with the pupil opening degree index obtained in the authentication process; and (Oda, Col. 3 Lines 8-12, *"iris code stored in the database"*)

comparing the feature data to be collated with the feature data obtained in the authentication process to determine whether or not the person to be authenticated is identical to the registrant. (Oda, Col. 3 Lines 8-12, *"identifies individuals by matching an iris code ..."*)

*It should be noted that in registering an object into a database, a unique generated key(s) and the object are stored into the database. The process of retrieving an object from a database requires a key(s) to be sent to the database and the database returns the object if the key(s) is found in the database system. The generation of the key should be consistent for proper working of the database. The*

*steps of acquiring the iris image, obtaining feature data and pupil opening degree index are equivalent to the generation of a unique key(s). The process of storing, retrieving and comparing the keys is part of the basic operation of a database.*

Regarding **claim 2**, Oda discloses the personal authentication method of claim 1, wherein:

the registration process includes the step of registering the feature data together with the pupil opening degree index in the iris database in conjunction with the registrant; and (*Oda, Col. 3 Lines 8-12, the database for storing iris codes of individuals and identifies individuals*)

the authentication process includes the step of specifying the feature data to be collated from feature data registered in the iris database in conjunction with a registrant by comparing the pupil opening degree index obtained in the authentication process with the pupil opening degree index registered together with the feature data. (*Oda, Col. 3 Lines 8-12, "identifies individuals by matching an iris code ...", where the iris code can be one of four codes based on lighting conditions (Col. 12 Lines 9-20)*)

Regarding **claim 3**, Oda discloses the personal authentication method of claim 2, wherein the registration process includes the step of at least registering three pieces of feature data of the registrant obtained from iris images in a pupil-contracted state, in a normal state, and in a pupil-dilated state, respectively. (*Oda, Col. 3 Lines 54-62, "Contraction of pupil diameter"*)

Regarding **claim 4**, Oda discloses the personal authentication method of claim 2, wherein the registration process includes the steps of:



acquiring a plurality of iris images having different pupil opening degrees from the registrant; (*Oda, Col. 5 Lines 17- Col. 6 Line 43 discloses photographing multiple images based on various light sources. The light sources intensity controls the pupil diameter*)

obtaining feature data from each of the plurality of acquired iris images; (*Oda, Col. 5 Lines 17- Col. 6 Line 43, the pupil diameter*) and

collating the plurality of pieces of feature data with each other to select feature data to be registered in the iris database from the plurality of pieces of feature data. (*Oda, Col. 12 Lines 9-20, the first to fourth codes generated*)

Regarding **claim 5**, Oda discloses the personal authentication method of claim 2, wherein the authentication process is aborted when feature data having a pupil opening degree index which is close to the pupil opening degree index obtained in the authentication process by a predetermined difference is not registered for the registrant. (*Oda, Col. 8 Lines 64-67, if there is no matching the processing is halted*)

Regarding **claim 7**, Oda discloses the personal authentication method of claim 1, wherein the registration process includes the steps of:

acquiring a plurality of iris images having different pupil opening, degrees from the registrant; (*Oda, Col. 5 Lines 17- Col. 6 Line 43 discloses photographing multiple images based on various light sources. The light sources intensity controls the pupil diameter*)

obtaining a relational expression between feature data and a pupil opening degree index based on a plurality of pieces of feature data and pupil opening degree

indices obtained from the plurality of acquired iris images; (*Oda, Col. 12 Lines 9-20, the first to fourth codes generated based on lighting sources*) and

registering parameters for expressing the relational expression in the iris database in conjunction with the registrant, (*Col 4, Lines 14-24, where the image of an eye exhibiting biogenic characteristics is inputted based on the life check code.*) and

the authentication process includes the step of obtaining a relational expression from parameters registered in the iris database in conjunction with a registrant and assigning the pupil opening degree index obtained in the authentication process to the relational expression to obtain the feature data to be collated. (*Oda, Col. 3 Lines 8-12, "iris code stored in the database" and "identifies individuals by matching", where matching is done by comparing iris code. In order to retrieve information from a database a relational expression must be used.*)

Regarding **claim 8**, Oda discloses the personal authentication method of claim 7, wherein:

the registration process includes the step of thinning the parameters before registration; (*Oda, Col. 1 Lines 43-58, the iris code generating device*) and

the authentication process includes the step of restoring the thinned parameters by interpolation. (*Oda, Col. 1 Lines 43-58, the iris code stored on the database*)

*Examiner is unsure of what applicant intends by "thinning", see rejection/objection above, examiner assumes applicant means creating a code from the eye feature data*

Regarding **claim 11**, Oda discloses a personal authentication method using iris images, comprising:

the first step of acquiring an iris image from a person to be authenticated; (*Oda, Col. 4 Lines 9-11*)

the second step of obtaining feature data and a pupil opening degree index from the iris image obtained at the first step; (*Oda, Col. 4 Lines 11-13, the system verifies whether or not the photographed image of the eye exhibits biogenic responses, Where typical biogenic responses are defined in Col. 3 Lines 54-62. The "pupil opening index" references "the contraction of pupil diameter"*)

the third step of obtaining feature data to be collated by referring to data registered for a registrant in an iris database in which data registration has been done using pupil opening degree indices with the pupil opening degree index obtained at the second step; (*Oda, Col. 3 Lines 8-12, "iris code stored in the database"*) and

the fourth step of comparing the feature data to be collated which is obtained at the third step with the feature data obtained at the second step to determine whether or not the person to be authenticated is identical to the registrant. (*Oda, Col. 3 Lines 8-12, "identifies individuals by matching an iris code ..."*)

Regarding **claim 12**, Oda discloses the personal authentication method of claim 11, wherein:

the iris database stores at least one piece of feature data for each registrant together with a pupil opening degree index; (*Oda, Col. 3 Lines 8-12, the database for storing iris codes of individuals and identifies individuals*) and

at the third step, a pupil opening degree index registered together with the feature data, which is selected from the at least one piece of feature data registered in the iris database in conjunction with the registrant, is compared with the pupil opening degree index obtained at the second step to specify the feature data to be collated.

*(Oda, Col. 3 Lines 8-12, "identifies individuals by matching an iris code ...", where the iris code can be one of four codes based on lighting conditions (Col. 12 Lines 9-20))*

Regarding **claim 13**, Oda discloses the personal authentication method of claim 11, wherein:

the iris database stores parameters which express a relational expression between feature data and a pupil opening degree index for each registrant; *(Oda, Col. 12 Lines 9-20, the first to fourth codes generated based on lighting sources)* and

at the third step, a relational expression is obtained from the parameter registered in the iris database in conjunction with a registrant, and the pupil opening degree index obtained at the second step is assigned to the relational expression, whereby the feature data to be collated is obtained. *(Oda, Col. 3 Lines 8-12, "iris code stored in the database" and "identifies individuals by matching", where matching is done by comparing iris code. In order to retrieve information from a database a relational expression must be used.)*

Regarding **claim 15**, Oda discloses an iris registration device which performs data registration for iris authentication, comprising:

means for acquiring an iris image from a registrant; *(Oda, Fig. 2, #4 camera)*

means for obtaining feature data and a pupil opening degree index from the iris image; (*Oda, Fig. 2, #19 "Iris Image Processing Section"*) and

means for performing data registration for the registrant in an iris database using the feature data and the pupil opening degree index. (*Oda, Fig. 2 #8, the "Host"*)

Regarding **claim 16**, Oda discloses an iris authentication device which performs personal authentication using iris images, comprising:

means for acquiring an iris image from a person to be authenticated; (*Oda, Fig. 2, #4 camera*)

means for obtaining feature data and a pupil opening degree index from the iris image; (*Oda, Fig. 2, #19 "Iris Image Processing Section"*)

means for obtaining feature data to be collated by referring to data registered for a registrant in an iris database in which data registration has been done using pupil opening degree indices with the obtained pupil opening degree index; (*Oda, Fig. 2, #19 "Iris Image Processing Section"*) and

means for comparing the feature data to be collated with the feature data to determine whether or not the person to be authenticated is identical to the registrant. (*Oda, Fig. 2, #10, "Authorized Person Matching Section"*)

Regarding **claim 17**, Oda discloses a program for instructing a computer to execute personal authentication using iris images, comprising the steps of:

obtaining feature data and a pupil opening degree index from an iris image acquired from a person to be authenticated; (*Oda, Col. 4 Lines 11-13, the system verifies whether or not the photographed image of the eye exhibits biogenic responses,*

*Where typical biogenic responses are defined in Col. 3 Lines 54-62. The "pupil opening index" references "the contraction of pupil diameter")*

obtaining feature data to be collated by referring to data registered for a registrant in an iris database in which data registration has been done using pupil opening degree indices with the obtained pupil opening degree index; (Oda, Col. 3 Lines 8-12, *"identifies individuals by matching an iris code ..."*, where the iris code can be one of four codes based on lighting conditions (Col. 12 Lines 9-20)) and

comparing the feature data to be collated with the feature data to determine whether or not the person to be authenticated is identical to the registrant. (Oda, Col. 3 Lines 8-12, *"identifies individuals by matching an iris code ..."*)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Flom et al. (Patent #4,641,349), hereafter referred to as Flom.

Regarding **claim 6**, Oda discloses the personal authentication method of claim 5,  
But Oda does not specifically teach

"wherein when the authentication process is aborted, a preferable condition for capturing an iris image is estimated based on the pupil opening degree index obtained

in the authentication process and a pupil opening degree index associated with registered feature data, *(Flom, Col. 11 Line 65- Col. 12 Line 10)* and

the person to be authenticated is advised to re-acquire an iris image under the estimated capturing condition. *(Flom, Col. 12 Lines 11-17)*"

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Oda with Flom for the purpose of getting the best possible image of the eye.

Claims 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida (Patent #6,424,746), hereafter referred to as Nishida.

Regarding **claim 9**, Oda discloses the personal authentication method of claim 1, wherein the registration process includes the steps of:

acquiring a plurality of iris images having different pupil opening degrees from the registrant; *(Oda, Col. 5 Lines 17- Col. 6 Line 43 discloses photographing multiple images based on various light sources. The light sources intensity controls the pupil diameter)*

But Oda does not specifically teach the concept of a transformation rule *(Nishida, Col 4, Line 53 to Col. 5 Line 16 does not disclose the use of iris images, but does discloses use of transformation rule applied to structural features which reads on the feature data.)* in

"specifying registration feature data from a plurality of pieces of feature data obtained from the plurality of acquired iris images and obtaining a transformation rule for

transforming the registration feature data to another feature data having a different pupil opening degree index; (*See Nishida Lines above*) and

registering the registration feature data and the transformation rule in the iris database in conjunction with the registrant, (*See Nishida lines above*)

the authentication process includes the step of generating the feature data to be collated using the pupil opening degree index obtained in the authentication process based on feature data and a transformation rule registered in the iris database in conjunction with a registrant. (*See Nishida lines above*)

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Oda with Nishida for the purpose of fixing images deformed by noise.

*Examiner notes that the creation of iris code in Oda is a transformation rule. But the transformation rule is not saved in the iris database in conjunction to the registrant.*

A simple encryption key can also read on the transformation rule.

Regarding **claim 14**, Oda discloses the personal authentication method of claim 11, wherein:

But Oda does not specifically teach the concept of a transformation rule

"the iris database stores feature data and a transformation rule for transforming the feature data to another feature data having a different pupil opening degree index for each registrant; (*Nishida, Col. 4 Line 53 to Col. 5 Line 16*) and

at the third step, the feature data to be collated is generated using the pupil opening degree index obtained at the second step based on the feature data and the



transformation rule registered in the iris database in conjunction with a registrant.

*(Nishida, Col. 4 Line 53 to Col. 5 Line 16)"*

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Oda with Nishida for the purpose of fixing images deformed by noise.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (Patent #6,614,919), hereafter referred to as Suzuki.

Regarding **claim 10**, Oda discloses the personal authentication method of claim 1,

But Oda does not specifically teach

"wherein the pupil opening degree index is the ratio of a pupil diameter to an iris diameter in an iris image." *(Suzuki, Col. 8 Lines 15-25, "ratio of the radius  $r_p$  of the pupil circle and the radius  $r_i$  of the iris circle to the central angle  $A_p$  of the pupil is determined (ratio  $IP=r_i/r_p$ )")*

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Oda with Suzuki for the purpose of defining a pupil opening degree index.

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Azuma et al. (PGPub 2005/0008200) discloses and authentication and Registration apparatus for iris encoding.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gandhi Thirugnanam whose telephone number is 571-270-3261. The examiner can normally be reached on M-Th, 7:30am to 6pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GT

  
SAMIR AHMED  
SUPERVISORY PATENT EXAMINER